



United States Patent and Trademark Office

Examiner: Hansen, C.

Art Unit: 3682

In re:

Applicant: GREUDEL, R.

Serial No.: 10/682,594

Filed: October 9, 2003

APPEAL BRIEF

March 14, 2005

Hon. Commissioner of
Patents and Trademarks
Washington, D.C. 20231

In response to the Notice dated March 4, 2005 and to the Final Rejection dated September 16, 2004, the Appellant hereby respectfully submits his Revised Appeal Brief:

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450. On 3/14/05

(1) Real Party in Interest

The real party in interest in the present application is the assignee of the application, Rexroth Star GmbH of Schweinfurt, Germany.

(2) Related Appeals and Interferences

There are currently no related appeals and interferences which will directly affect or be directly affected by or which have a bearing on the decision in the present appeal.

(3) Status of the Claims

Claims 1 through 18 and 30 were finally rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,803,616 to Persson et al in view of U.S. Patent No. 5,642,946 to Caillault et al. Claims 1-18 and 30 were further rejected under 35 U.S.C. 103(a) as being unpatentable over Persson et al in view of Japanese Pat. 2-209624. Claims 1-18 and 30 were also rejected under 35 U.S.C. 103(a) as being unpatentable over Persson et al in view of Japanese Patent 54-3640. The Appellants appeal the final rejection of all of claims 1 through 18 and 30.

(4) Status of Amendments

The Appellant filed did not file any amendment or response to the Final Office Action dated September 16, 2004.

(5) Summary of the Invention

As disclosed on page 22, lines 1-16 of the specification, the present invention relates to a rotary bearing 20 with a first lubricant passage 30 formed in a radially outer bearing part 38 of the roller bearing 20. With the supply of lubricant through the first lubricant passage 30 into a ring chamber 32, a reliable lubrication of the roller bodies of two roller body rows 22 and 24 and the running paths provided fro them on the radially outer bearing part 28 and a radially inner bearing part 26 is ensured.

The first lubricant passage 30 has a lubricant nipple or another suitable device for supply lubricant, which is arranged at the radially outer end of the lubricant passage or connected to it. (see page 22, line 17 through page 23, line 1). Since the roller bodies preferably are guided in roller bearing cages 34 and in some case are held there, as shown in Fig. 2, the lubricant passes between the roller bodies and is supplied to the axial end surfaces of both bearing parts 26,

28. An undesirable leak of lubricant is prevented there by seals 36 shown in Fig. 1 (see page 23, lines 5-10).

As discussed on page 23, line 16 through page 24, line 4, in order to ensure that the lubricant supply through the first lubricant passage 30 also lubricates the engaging surfaces of the threaded drive itself, a second lubricant passage 38 extends in the radially inner bearing part 26 in a radial direction. Specifically, the lubricant passage 38 extends from the ring chamber 32, specifically, from the outer peripheral surface 26a of the radially inner bearing part, to its inner peripheral surface 26b.

In the embodiment shown in Figure 1 and as described on page 24, line 17 through page 25, line 7, a threaded nut 14 is provided with a shoulder 14c at its right end. When it passes through the lumen of the radially inner bearing part 26, it narrowly abuts against the radially inner bearing part 26 and can be secured in a simple way by a counter nut 44. The lubricant supply from the ring chamber 32 to the engaging surfaces of the threaded drive 14/16 is performed through the second lubricant passage 38 of both ring grooves 26c and 14d and a third lubricant passage 40.

The radially inner bearing part 26 and the radially outer bearing part 28 are rotatable relative to one another about an axis of the rotary bearing 20. As noted above, the lubricant passage arrangement includes at least one first

lubricant passage 30 with one end which opens into the inner peripheral surface 28a of the radially outer bearing part 28 and another end which is connectable with a lubricant supply. A second lubricant passage 38, leading from the outer peripheral surface 26a, of the radially inner bearing part 26 leads to its inner peripheral surface and a ring chamber 32, which is formed between the inner peripheral surface 28a of the outer bearing part 28 and the outer peripheral surface 26a of the inner bearing part 26. The first lubricant passage 30 and the at least one second lubricant passage 38 open in the ring chamber 32 (specification, page 2, second paragraph).

The present invention provides an improved rotary bearing over the state of the art by providing a rotary bearing 20, in which in the ring chamber 32, a lubricant distributing element is arranged as a special component, which is in a lubricant-supply connection with the first lubricant passage 30.

(6) Issues

The following issues and grounds for rejection are presented for review:

- A) Whether claims 1-18 and 30 are obviously unpatentable under 35 U.S.C. 103(a) over U.S. Patent No. 5,803,616 to Persson et al in view of U.S. Patent No. 5,642,946 to Caillault et al;
- B) Whether claims 1-18 and 30 are obviously unpatentable under 35 U.S.C. 103(a) over Persson in view of Japanese Pat. 2-209624; and

C) Whether claims 1-18 and 30 are obviously unpatentable under 35 U.S.C. 103(a) over Persson et al in view of Japanese Pat. 54-3640.

(7) Grouping of Claims

a) Claims 1-18 and 30, which stand or fall together.

(8) Argument

A. Claims 1-18 and 30 are not unpatentable under 35 U.S.C. 103(a) over U.S. Patent No. 5,803,616 to Persson et al in view of U.S. Patent No. 5,642,946 to Caillault et al.

The Appellant respectfully submits that the practitioner of ordinary skill in the art would not be lead to the present invention by combining the Persson and Caillault references. The mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification. ***In re Fritch***, 23 UPSQ 2d 1780, 1783-84 (Fed. Cir. 1992).

Specifically, neither Persson nor Caillault discloses or suggests a lubricant distributing element as defined in the application at hand.

The primary reference to Persson discloses a taper roller bearing, in which a great retainer ring 10 is attached to an outer ring 1 of the bearing and includes apertures 15 through which the grease that is inserted through grease holes 9 in the outer bearing ring 1 escapes toward the rollers 5. Persson's device does not include a second lubricant passage between an outer peripheral surface of an inner bearing part to an inner peripheral surface of the inner bearing part.

The Examiner combines Persson with Caillault in order to obtain the above feature, arguing that Caillault discloses such a second lubricant passage through the inner bearing part. However, the seal 9 of Caillault is not a second lubricant passage. On the contrary, its purpose is to allow the passage of fluid through the bearing, while preventing the bearing lubricant from penetrating the regions via which the fluid passes through the bearing. Thus, Caillault actually teaches away from the present invention.

With regard to claim 30, it is respectfully submitted that the cited reference combination fails to disclose or suggest to the practitioner that "a first outflow path is formed between an outer surface of said lubricant distributing element which extends substantially orthogonal to an axial direction and a counter surface

of said ring chamber which extends also substantially orthogonal to the axial direction”.

Therefore, even if Persson is combined with Caillault, the present invention would not be the result.

B. Claims 1-18 and 30 are not unpatentable under 35 U.S.C. 103(a) over Persson in view of Japanese Pat. 2-209624.

The Examiner states further that Persson fails to disclose “a second lubrication passage within the outer portion of the inner radial bearing, nor does it disclose the first lubrication passage having the securing tube”. The Examiner then goes on to assert that both Japanese Patent No. 2-209624, which is combined with Persson, “discloses a second lubrication passage, allowing an outflow of lubrication into the inner portion of the inner radial bearing”, thus rendering obvious the present invention.

The Appellant respectfully disagrees. As the Examiner himself stated, Persson does not show or disclose a second lubrication passage within the outer portion of the inner radial bearing **OR** that the first lubrication passage has a securing tube. Even if the Japanese patent 2-209624 did disclose a “second

lubrication passage", this passage is not disclosed in the references as specifically being located within an outer portion of the inner radial bear.

Furthermore, Japanese Patent No. 2-209624 is silent as to the first lubrication passage having a securing tube.

Therefore, even if the practitioner were to combine the Persson patent with Japanese Patent No. 2-209624, the present invention would not be the result, since this reference fails to disclose or even suggest the above features of the present invention as defined in claims 1-18 and 30.

C. Claims 1-18 and 30 are obviously unpatentable under 35 U.S.C. 103(a) over Persson et al in view of Japanese Pat. 54-3640.

As argued above with regard to Japanese Patent No. 2-209624, the combination of the Persson patent with Japanese Patent No. 54-3640 likewise does not render obvious the present invention.

Again, Persson fails to disclose "a second lubrication passage within the outer portion of the inner radial bearing, nor does it disclose the first lubrication passage having the securing tube". The Examiner then goes on to assert that both Japanese Patent No. 2-209624, which is combined with Persson, "discloses

a second lubrication passage, allowing an outflow of lubrication into the inner portion of the inner radial bearing”, thus rendering obvious the present invention.

The Appellant respectfully disagrees with the Examiner’s position that Japanese Pat. No. 54-3640 “discloses a second lubrication passage, allowing an outflow of lubrication into the inner portion of the inner radial bearing”, thus rendering obvious the present invention. As the Examiner himself states in the final Office Action, Persson does not show or disclose a second lubrication passage within the outer portion of the inner radial bearing **OR** that the first lubrication passage has a securing tube. Like Japanese Patent No. 2-209624, Japanese Patent No. 54-3640 fails to disclose or suggest a second lubrication passage that is specifically located within an outer portion of the inner radial bearing.

In addition, Japanese Patent No. 54-3640 also fails to disclose or suggest that the first lubrication passage has a securing tube.

Therefore, even if the practitioner were to combine the Persson patent with Japanese Patent No. 54-3640, the present invention would not be the result, since this reference fails to disclose or even suggest the above features of the present invention as defined in claims 1-18 and 30.

D. Conclusion

It is respectfully submitted that since the prior art does not suggest the desirability of the claimed invention, such art cannot establish a prima facie case of obviousness as clearly set forth in **MPEP section 2143.01**. Please note also that the modification proposed by the Examiner would change the principle of operation of the prior art, so that also for this reason the references are not sufficient to render the claims prima facie obvious (see the last paragraph of the aforementioned **MPEP section 2143.01**).

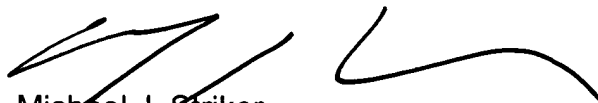
Indeed, obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination. Under Section 103, teachings of references can be combined only if there is some suggestion or incentive to do so. *ACS Hosp. Sys., Inc. v. Montefiore Hosp.*, 221 USPQ 929, 932, 933 (Fed. Cir. 1984).

In addition, it is improper to imbue one of ordinary skill in the art with knowledge of the present invention when none of the cited references convey or suggest the knowledge. This leads to impermissible hindsight, wherein that which only the inventor taught is used against its teacher. *W.L. Gore & Assocs., Inc., v. Garlock, Inc.*, 220 USPQ 303, 312-13 (Fed. Cir. 1983), *cert. denied*, 460 U.S. 851 (1984). Here,

For the reasons set forth above, the Appellant respectfully submits that claims 1-18 and 30 are patentable over the cited references to Persson et al in view of Caillault et al and Persson combined with either of the cited Japanese patents.

Therefore, the Appellant respectfully requests that the honorable Board of Appeals reverse the final rejections of claims 1-18 and 30 under 35 U.S.C. 103 for the reasons set forth above, and grant an allowance of this case.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Michael J. Striker', is written over the typed name.

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(9) Appendix

Claims on appeal:

1. A rotary bearing, comprising a radially inner bearing part and a radially outer bearing part rotatable relative to one another about an axis; a lubricant passage arrangement for supplying a lubricant both to engaging surfaces of said radially inner bearing part and said radially outer bearing part and also to a further lubricating point, said lubricant passage arrangement including at least one first lubricant passage having one end which opens in an inner peripheral surface of said radially outer bearing part and another end which is connectable with a lubricant supply, at least one second lubricant passage which leads from an outer peripheral surface of said radially inner bearing part to an inner peripheral surface of said radially inner bearing part, and a ring chamber between said inner peripheral surface of said outer bearing part and said outer peripheral surface of said inner bearing part, said at least one first lubricant passage and said at least one second lubricant passage opening in said ring chamber; a lubricant distributing element formed as a separate part which is arranged in said ring chamber, said lubricant distributing element being in a lubricant supplying connection with said at least one first lubricant passage; means forming at least one first outflow path associated with said lubricant distributing element for supplying lubricant to the engaging surfaces of said bearing parts, and means for providing at least one second outflow path

associated with said lubricant distributing element for supplying lubricant through said at least one second lubricant passage to said at least one further lubricating point.

2. A rotary bearing as defined in claim 1, wherein said at least one outflow path is arranged so as to be located at a location selected from the group consisting of in said lubricant distributing element, on said lubricating distributing element, and both.

3. A rotary bearing as defined in claim 1, wherein said at least one second outflow path is arranged so as to be located at a location selected from the group consisting of in said lubricant distributing element, on said lubricating distributing element, and both.

4. A rotary bearing as defined in claim 1, wherein said lubricant distributing element has a substantially U-shaped cross-section with two side legs and a connecting transverse web.

5. A rotary bearing as defined in claim 4, wherein said side legs and said transverse web together limit an inner space of said lubricant distributing element, said transverse web having at least one supply opening through which lubricant is supplied from said at least one first lubricant passage into said inner space of said lubricant distributing element.

6. A rotary bearing as defined in claim 1, wherein said first outflow path is formed between an outer surface of said lubricant distributing element which extends substantially orthogonal to an axial direction and a counter surface of said ring chamber which extends also substantially orthogonal to the axial direction.

7. A rotary bearing as defined in claim 1, wherein said at least one second outflow path is formed so that said at least one second lubricant passage opens into said inner space of said lubricant distributing element.

8. A rotary bearing as defined in claim 1; and further comprising at least one securing element which secures said lubricant distributing element with respect to said radially outer bearing part.

9. A rotary bearing as defined in claim 8, wherein said securing element secures said lubricant distributing element relative to said radially outer bearing part both in an axial direction and in a peripheral direction.

10. A rotary bearing as defined in claim 8, wherein said securing element is formed as a pipe which is received in said first lubricant passage and engage in a securing depression provided on an outer periphery of said lubricant distributing element, said securing depression having a bottom surface with a

supply opening which leads to an inner space of said lubricant distributing element.

11. A rotary bearing as defined in claim 1, wherein said lubricant distributing element is formed as a lubricant distributing ring.

12. A rotary bearing as defined in claim 1, wherein said radially inner bearing part has two bearing part bodies with axial end surfaces abutting against one another.

13. A rotary bearing as defined in claim 12, wherein said both bearing bodies are formed identically and arranged mirror-symmetrically.

14. A rotary bearing as defined in claim 1, wherein said radially inner bearing part is provided on said inner peripheral surface with a ring groove.

15. A rotary bearing as defined in claim 14, wherein said ring groove extends substantially over a whole periphery of said inner peripheral surface of said radially inner bearing part.

16. A rotary bearing as defined in claim 1; and further comprising a plurality of roller bodies so that the rotary bearing is formed as a roller bearing.

17. A rotary bearing as defined in claim 16, wherein said roller bodies are arranged in two rows which are spaced from one another in the axial direction.

18. A rotary bearing as defined in claim 17, wherein said rows of said roller bodies have load lines which include an acute angle with said axis, said load lines of said both roller body rows forming an O-arrangement in a section which contains said axis.

30. A rotary bearing, comprising a radially inner bearing part and a radially outer bearing part rotatable relative to one another about an axis; a lubricant passage arrangement for supplying a lubricant both to engaging surfaces of said radially inner bearing part and said radially outer bearing part and also to a further lubricating point, said lubricant passage arrangement including at least one first lubricant passage having one end which opens in an inner peripheral surface of said radially outer bearing part and another end which is connectable with a lubricant supply, at least one second lubricant passage which leads from an outer peripheral surface of said radially inner bearing part to an inner peripheral surface of said radially inner bearing part, and a ring chamber between said inner peripheral surface of said outer bearing part and said outer peripheral surface of said inner bearing part, said at least one first lubricant passage and said at least one second lubricant passage opening in said ring chamber; a lubricant distributing element formed as a separate part which is

arranged in said ring chamber, said lubricant distributing element being in a lubricant supplying connection with said at least one first lubricant passage; means forming at least one first outflow path associated with said lubricant distributing element for supplying lubricant to the engaging surfaces of said bearing parts, and means for providing at least one second outflow path associated with said lubricant distributing element for supplying lubricant through said at least one second lubricant passage to said at least one further lubricating point, wherein said first outflow path is formed between an outer surface of said lubricant distributing element which extends substantially orthogonal to an axial direction and a counter surface of said ring chamber which extends also substantially orthogonal to the axial direction.